GENERALIZED GLOBAL STRATIGRAPHY OF VENUS AND IMPLICATIONS FOR GEOLOGIC EVOLUTION

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The paucity of impact craters on the surface of Venus and their random distribution renders the determination of surface ages extremely difficult. Stratigraphic and transection relations can be used to determine, at least, the sequence of geologic events. Impact craters and associated phenomena do provide constraints on the geologic history. We propose a simple scheme that divides **Venus** history into two basic divisions, the earliest corresponding to the time prior to the formation of the surfaces that record the present population of impact craters, and the second corresponding to the time during which the craters formed. Perhaps coincidentally, this classification parallels, in the approximate time split as well as the fraction of available surface exposed to study, the division of Earth history into two major divisions: the Precambrian and the Phanerozoic Eons. As on Earth, the later period can be described in far more detail. Although impact craters are misleading, they provide the framework, Crater characteristics that provide the basis for a stratigraphic scheme include their small number, the, fact that most are unmodified or modified by processes that have occurred recently, and the conclusion that any early population of craters has been completely erased. The number of craters and their random distribution is consistent with a model in which Venus had a fresh, uncratered surface approximately 300 to 700 my ago. Whatever early process was erasing craters essentially terminated within a relatively short interval at a time that marks the boundary between the two Venusian eons. The stratigraphically distinguishable surfaces include (1) Complex Ridged Terrain (tessera) which, whatever the range of absolute age, is all that remains of the first 4 BY, (2.) global background plains, representing a transition period about 500 my ago, ending the first eon, and (3) younger volcanics and rift zones.

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